

REMARKS

Claims 1-29 and 31-59 are pending in this application. By this Amendment, the specification and Abstract are amended, a drawing is added, claims 1, 20, 25 and 28 are amended, claim 30 is cancelled without prejudice or disclaimer, and new claims 31-59 are added. Reconsideration based on the above amendments and the following remarks is respectfully submitted.

I. Request for Acknowledgement of Consideration of Disclosed Information

An Information Disclosure Statement with Form PTO-1449 was filed in the above-captioned patent application on August 27, 2003. Applicants have not yet received back from the Examiner a copy of the Form PTO-1449 initialed to acknowledge the fact that the Examiner has considered the cited disclosed information. The Examiner is requested to initial and return the undersigned a copy of the subject Form PTO-1449. For the convenience of the Examiner, a copy of that form is attached.

II. The Drawings Satisfy All Formal Requirements

The drawings objected to under 37 C.F.R. §1.83(a) because the drawings do not show "the piezoelectric sandwiched structure ... supported on an acoustic reflective stack," as recited in claim 3. Applicants have added Figure 10 to overcome this rejection. Withdrawal of the objection to the drawings is respectfully requested.

III. The Specification Satisfy All Formal Requirements

The Office Action objects to the specification because of informalities. The specification is amended to obviate the objection in accordance with the Examiners suggestions. Withdrawal of the objection to the specification is respectfully requested.

IV. The Claims Satisfy All Formal Requirements

The Office Action objects to claim 28 due to informalities. Claim 28 is amended to obviate the objection in accordance with the Examiners suggestion. Withdrawal of the objection to claim 28 is respectfully requested.

V. The Claims Satisfy the Requirements of 35 U.S.C. §112

The Office Action rejects claim 30 under 35 U.S.C. §112, second paragraph as being indefinite. Applicants have cancelled claim 30 without prejudice or disclaimer. Therefore, withdrawal of the rejection is respectfully requested.

VI. The Claims Define Allowable Subject Matter

A. Claims 1, 7, 10, 14, 15, 20, 25 and 27-29

Claims 1, 7, 10, 14, 15, 20, 25 and 27-29 are rejected under 35 U.S.C. §102(b) as unpatentable over U.S. Patent 3,549,414 to Curran et al. ("Curran"). This rejection is respectfully traversed.

Curran discloses a wafer of a piezoelectric material provided with electrodes on opposite surfaces of the piezoelectric material. By applying a high Q dielectric non-conducting film over the surface of at least one electrode and the surrounding non-electrode wafer material, tuning is accomplished. The desired resonance frequency of the electrode region is obtained by changing the film thickness.

Curran does not disclose, teach or suggest a filter having "two close-in rejections, at least one of which is deeper as compared with a case where the thickness of respective layers in the FBARs are the same among all the FBARs," as recited in independent claims 1 and 25 from which claims 7, 10, 14, 15, 20, and 27-29 depend directly or indirectly therefrom. Therefore, withdrawal of this rejection is respectfully requested.

B. Claims 1-4, 6, 7, 9, 11, 14, 15, 18 and 20-29

The Office Action rejects claims 1-4, 6, 7, 9, 11, 14, 15, 18 and 20-29 under 35 U.S.C. §102(b) as unpatentable over EP 0 949 756 A2 to Ella. This rejection is respectfully traversed.

Ella discloses monolithic filters utilizing thin film bulk acoustic wave devices and minimum passive components for controlling the shape and width of a pass band response. Although Ella discloses thin film bulk acoustic resonators, Ella does not disclose, teach or suggest a filter having "two close-in rejections, at least one of which is deeper as compared with a case where the thickness of the respective layers of the FBARs are the same among all of the FBARs," as recited in independent claims 1 and 25 from which claims 2-4, 6, 7, 9, 11, 14, 15, 18, 20-24 and 26-29 depend directly or indirectly therefrom. Therefore, withdrawal of this rejection is respectfully requested.

C. Claims 1-3, 8, 9, 11, 15 and 21-29

Claims 1-3, 8, 9, 11, 15 and 21-29 are rejected under 35 U.S.C. §102(e) as unpatentable over U.S. Patent 6,337,136 to Rittenhouse et al. ("Rittenhouse"). This rejection is respectfully traversed.

Rittenhouse discloses a thin film resonator filter circuit including a plurality of thin film resonators connected in a series-shunt or shunt-series arrangement, wherein the resonant frequency sets in each of the series arms are equal and the resonant frequency sets in each of the shunt legs are equal.

However, Rittenhouse does not disclose, teach or suggest a filter having "two close-in rejections, at least one of which is deeper as compared with a case where the thickness of the respective layers of the FBARs are the same among all of the FBARs," as recited in independent claims 1 and 25 from which dependent claims 2-3, 8, 9, 11, 15, 21-24 and 26-29

directly or indirectly depend. Therefore, withdrawal of this rejection is respectfully requested.

D. Claims 1-4, 7, 8, 11, 14, 15 and 20-29

Claims 1-4, 7, 8, 11, 14, 15 and 20-29 are rejected under 35 U.S.C. §102(e) as unpatentable over U.S. Patent 6,307,447 to Barber et al. ("Barber"). This rejection is respectfully traversed.

Barber discloses a method for adjusting different resonant frequencies of a plurality of mechanical resonators, wherein there was a resonator structure having a top electrode structure having a top most layer having different etching characteristics for different resonators.

However, Barber does not disclose, teach or suggest, a filter having "two close-in rejections, at least one of which is deeper as compared with a case where the thickness of the respective layers of the FBARs are the same among all of the FBARs," as recited in independent claims 1 and 25 from which claims 2-4, 7, 8, 11, 14, 15, 20-24 and 26-29 depend indirectly or directly therefrom. Therefore, withdrawal of this rejection is respectfully requested.

E. Claim 17

Claim 17 is rejected under 35 U.S.C. §103(a) as unpatentable over Ella in view of U.S. Patent 5,587,620 to Ruby et al. ("Ruby"). This rejection is respectfully traversed.

Ella and Ruby, taken separately or in combination, do not disclose, teach or suggest a filter having "two close-in rejections, at least one of which is deeper as compared with a case where the thickness of the respective layers of the FBARs are the same among all of the FBARs," as recited in claim 1 from which claim 17 indirectly depends. Accordingly, withdrawal of this rejection is respectfully traversed.

F. Claims 8 and 19

Claims 8 and 19 are rejected under 35 U.S.C. §103(a) as unpatentable over Ella in view of U.S. Patent 5,692,279 to Mang et al. ("Mang"). This rejection is respectfully traversed.

Ella and Mang, taken separately or in combination, do not disclose, teach or suggest a filter having "two close-in rejections, at least one of which is deeper as compared with a case where the thickness of the respective layers of the FBARs are the same among all of the FBARs," as recited in claim 1 from which claims 18 and 19 depend directly or indirectly. Therefore, withdrawal of this rejection is respectfully requested.

G. Claims 5 and 8

Claims 5 and 8 are rejected under 35 U.S.C. §103(a) as unpatentable over Ella in view of U.S. Patent 5,894,647 to Lakin. This rejection is respectfully traversed.

Ella and Lakin taken separately or in combination, do not disclose, teach or suggest, a filter having "two close-in rejections, at least one of which is deeper as compared with a case where the thickness of the respective layers of the FBARs are the same among all of the FBARs," as recited in independent claim 1 from which claims 5 and 8 depend directly. Therefore, withdrawal of this rejection is respectfully requested.

H. Claim 13

Claim 13 is rejected under 35 U.S.C. §103(a) as unpatentable over Ella in view of U.S. Patent 6,093,338 to Tani et al. ("Tani"). This rejection is respectfully traversed.

Ella and Tani, taken separately or in combination, do not disclose, teach or suggest, a filter having "two close-in rejections, at least one of which is deeper as compared with a case where the thickness of the respective layers of the FBARs are the same among all of the FBARs," as recited in claim 1 from which claim 13 directly depends. Therefore, withdrawal of this rejection is respectfully requested.

I. Claim 16

Claim 16 is rejected under 35 U.S.C. §103(a) as being unpatentable over Ella in view of U.S. Patent 6,060,818 to Ruby et al. ("Ruby"). This rejection is respectfully traversed.

Ella and Ruby, taken separately or in combination, do not disclose a filter having "two close-in rejections, at least one of which is deeper as compared with a case where the thickness of the respective layers of the FBARs are the same among all of the FBARs," as recited in independent claim 1 from which claim 16 depends. Therefore, withdrawal of this rejection is respectfully requested.

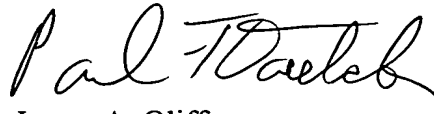
For at least these reasons, it is respectfully submitted that independent claims 1 and 25 are distinguishable over the applied art. The remainder of the claims that depend from independent claims 1 and 25 likewise distinguishable over the applied art for at least the reasons discussed above, as well as for the additional features they recite. Newly added independent claims 31 and 55 recite that the filter has a lower minimum insertion loss in a band pass area as compared with a case where the thicknesses of respective layers in the FBARs are the same among all the FBARs. This feature is not disclosed or suggested in any of the applied art, taken separately or in combination. Thus, claims 31 and 55 are distinguishable over the applied art. The remainder of the newly added claims that depend from independent claims 31 and 55 are likewise distinguishable over the applied art for at least the reasons discussed above, as well as for the additional features they recite.

VII. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-29 and 31-59 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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JAO:PFD/can

Attachments:

Amended Abstract
Form PTO-1449
New Drawing Sheet (Fig. 10)
Amendment Transmittal

Date: December 4, 2003

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